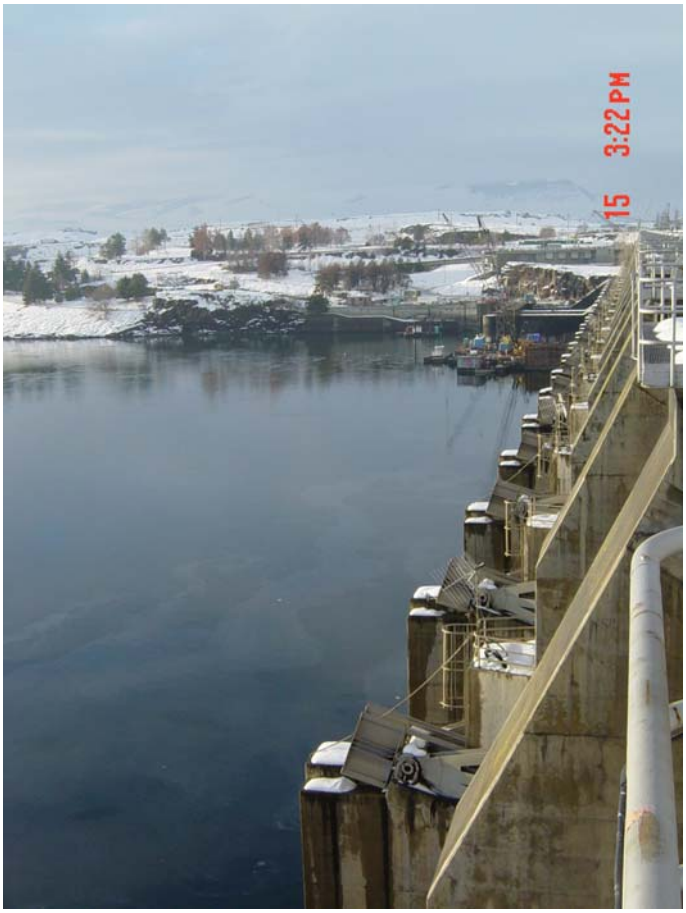
Dalles Project Spill, 15 January 2004

Review of WDOE Response



Dalles Dam base, photo by Will Strand, WDOE 1/15/04 @ 1522

Prepared for the Washington State Department of Ecology

by

John Murphy

Genwest Systems, Inc.

LESSONS LEARNED
THE DALLES DAM OIL SPILL
THE DALLES DAM, WASHINGTON
January 15, 2004

Prepared By: John Murphy, Genwest Systems, Inc.
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Foreword By:
Washington State Department of Ecology

The Washington State Department of Ecology's Spill Prevention, Preparedness, and Response Program commissioned this report to capture the lessons learned in responding to the significant oil spill at The Dalles Dam. Such spills are costly, and the learning opportunity comes at a premium not to be lost.

In commissioning this report, Ecology specifically asked the contractor to limit this review to three aspects of the response: whether there was avoidable delay, whether the Unified Command acted in unison, and whether there was adequate information flow from the scene to Ecology headquarters and stakeholders.

Ecology is committed to a learning culture, and the capture of lessons learned under actual emergency conditions provides high value. It is Ecology's intent to continually improve its spill preparedness and response skills. Externally, Ecology hopes to capitalize upon a similar desire for spill response improvement within the U.S. Army Corps of Engineers. Ecology has offered to assist the Corps with spill training, preparedness, and drills to achieve faster and more effective spill response. This offer has been accepted.

Finally, the content of this report represents the research and view of Genwest Systems, Inc. In publishing this report, Ecology has not altered its content. However, it is appropriate that we add our voice by offering our selection of lessons (limited to preparedness and response issues) that we believe carry the greatest environmental payback.

1. Spill Potential Drives Response: In spills from complex structures, and especially in spills to moving water, the scope of response should be based on the potential spill volume, not the first estimates of the amount spilled.

2. Policy and Procedure for Overhead Team: Ecology needs a written policy and procedure to perfect the triggering and population of its newly developed "overhead teams."

3. Information and Support Flow Between Spill Scene and Headquarters: A Headquarters Response Support and Information Center should be established for Level 3 responses and above, following development of written policies and procedures.

Ecology would like to thank the U.S. Army Corps of Engineers; the National Response Corporation; the U.S. Environmental Protection Agency; the Washington State Departments of Fish and Wildlife, Natural Resources, and Health; the Washington State Parks and Recreation Commission; and all the other private and governmental parties that participated in this spill response.

Introduction:

Under contract with the Washington Department of Ecology (WDOE), Spill Prevention, Preparedness & Response Program (SPPR), Genwest Systems Inc. was asked to review the response to the Dalles Dam oil spill of January 15, 2004, and prepare a report focused on three specific response internal issues:

Delay: Was there delay in launching the WDOE Level 3 overhead team?

1) Unified Command (UC): Did unity break down in the UC?
2) Information Flow: Was there adequate information flow from on-scene staff to headquarters and stakeholders?

These issues and others identified in the course of this review are addressed as appropriate in this report highlighting: lessons learned; successful performance; and recommendations, with emphasis on specific techniques to implement the recommended improvements.

A selective chronology of the initial response is appended to this report, compiled to establish a baseline of what information was available, at what time, and in what location, to support key decisions. It is important to acknowledge that in any after-action assessment, it is difficult, if not impossible, to totally ignore information learned after-the-fact, which can lead to an unfair critique of response actions.

In preparing this report, interviews were conducted with WDOE responders and headquarters staff as requested. Pertinent Incident Command System (ICS) forms, photographs, WDOE Lessons-Learned forms, press releases, web sites and available personal notes were reviewed, along with the Army Corps of Engineers (ACoE) assessment report and other ACoE documents. Only a very brief summary of the spill and the response is provided as a part of this report, highlighting key decision points related to the issues to be considered. More detailed information is available in the chronology and in the response documentation referenced above. For simplicity, all times in this report, as well as the chronology, are given in Pacific Standard Time using a 24-hour clock.

Incident summary:

On Thursday morning, January 15th, 2004 at 0630 an oil spill was discovered inside the power plant at the ACoE Dalles Dam Project. The oil was traced back to a transformer secondary containment area with leaking seals. Oil was discovered to have leaked into the gate slots above the dam, and at 0848 oil was reported in the spillway tail water area below the dam. The ACoE incident assessment report[1] contains a detailed description of the cause and path of the oil spill. The spill was reported to the National Response Center by the ACoE staff at 0945. The initial quantity of oil reported as released into the river was approximately 25 gallons. The Washington Emergency Management Division was notified by the NRC at 1027. Mark Layman, the

[1] See ACoE Assessment Paper 2/3/04, Pages 1 & 2

designated WDOE Central Regional Office (CRO) State On-Scene Coordinator (SOSC) was notified at 1030. At 1150, just before leaving Yakima enroute to the Dalles, Mark received a call from Jim Dennis of ACoE stating that they had activated their contractors and were seeing oil at the base of the dam (i.e. downstream). The appended chronology provides needed details of the continuing communications between Mark and the WDOE headquarters staff and the ACoE staff at the Dam.

Mark and Will Strand from the CRO were the first WDOE responders on-scene, arriving at the dam at 1455, two hours before sunset. In meeting with ACoE staff Mark learned that the spilled oil contained 8ppm of PCB (based on ACoE provided fact sheet from previous product analysis). Mark informed staff at WDOE headquarters of this development. A few minutes later, Mark was informed that dead fish had been found in the oiled water above the dam and relayed this information to SPPR NRDA staff at headquarters. Incident Objectives were developed and recorded on ICS-202 forms that afternoon, and the immediate objectives both for the remainder of the 15th and for the next morning, included directions that downstream surveys were to be conducted.

During this response the weather was cold and windy with temperatures ranging from 28°F to 36°F and winds up to 12 mph. Sunrise was just before 0800 and sunset was just before 1700.

Ron Holcomb, arrived on-scene at 1045 Friday morning January 16th, providing immediate support in the command post and serving as the State investigator. Working with ACoE staff, Ron focused on trying to locate the source of the downstream oil spill, and began developing a mass balance based on the potential quantity of oil in the transformers before the release. On Friday the ACoE press release upped the estimated quantity spilled into the river to 75 gallons. After a series of phone calls on Friday morning between the SOSC and headquarters staff, it was determined that an overflight of the Columbia River downstream from the Dalles Project should be conducted Friday afternoon. The observers on the overflight were David Mora and Rebecca Post from SPPR and Andy Carlson from WDF&W.

In the Unified Command meeting at 1130 that morning, attended by Jim Dennis (ACoE-IC), Mike Renz (OSOSC), Dan Heister (FOSC from EPA) and Mark Layman (WSOSC), Mark recommended enhancing the spill management ICS capabilities by bringing in a “Level 3 Overhead Team” from WDOE. Mark based this recommendation on the presence of PCB’s in the oil, an unknown quantity of oil downstream, the fish kill and the need for additional trained command post staff. This recommendation was rejected by the rest of the UC, with the FOSC downplaying the PCB issue and the OSOSC minimizing the response management support needs.

At 1410 the SOSC received a call from the helicopter team informing him that they had landed in the vicinity of the city of Carson about 37 river-miles below the Dalles Dam and had seen oil sheens “bank to bank”. The helo team arrived at the CP at 1530 as did Jon Kuykendall who conducted a visual survey of the river while driving from the WDOE office in Vancouver. All observers reported sighting oil sheens as far as 40 miles downstream from the Dalles Dam. Conversations that afternoon between on-scene WDOE staff and SPPR Headquarters led to the deployment of additional personnel constituting a “full Level 3 overhead team” who began arriving Saturday morning, January 17th.

The appended chronology taken from the ICS-211p Check-in Lists for Saturday, the 17th, shows that Mark Layman, Will Strand, Ron Holcomb, Rebecca Post and Dale Davis (NRDA replacing

Mora) all checked-in at 0630 that morning. Other WDOE personnel checking in on the 17th were: Curt Piesch at 0720; Nanette Brooks at 0830, Joye Redfield (PIO) at 1000; Shellyne Grisham, John Butler & Andy Carlson (WDFW) flew in by helo from Olympia, checking in at 1055; Dan Doty and Eric Larson (WDFW) at 1630; and Eric Heinitz and Doug Stolz checked-in at 1750. No Check-In Lists were available after the 17th, but the WDOE staff on-site by that afternoon clearly constituted a "Level 3" team. The documentation indicates that the WDOE team performed well in monitoring and directing the response through the ICS organization and process during the remainder of the response.

Mass balance computations completed almost a week into the response, estimated that 2,050 gallons of oil were spilled, with approximately 1,300 gallons of oil being released into the river below the project.

Response review:

Issue 1: Delay

While the initial posed question is focused on any "avoidable delay in the level 3 overhead team launch", other perceived or actual delays are also addressed here.

Delay consideration: RP spill volume estimates, assurances and use of oil loss potential

The ACoE staff initially estimated the quantity spilled into the water as 25 gallons based on observed sheens, rather than actively pursuing mass balance computations based on accounting for the total potential oil in the transformer tanks. Even when the estimate was raised to 75 gallons, it was based on observations of oil in the river around the dam and the oil recovered in the dam.

Lesson: Even well-intended estimates of spill volume based on observations of floating oil should not be accepted unless they are confirmed by valid mass balance computations beginning with a recognized total potential amount released.

Success: Bringing Ron Holcomb's expertise on scene as soon as possible aided in refocusing the investigation on the oil that had been released or was being released downstream, and on the use of mass balance computations which would include the total potential oil remaining in the two transformers.

Recommendation: All investigators, including the first person on scene, until a designated investigator arrives, should be directed to immediately ascertain the potential volume and insist on referring to this potential in all communications until a better estimate is derived through mass balance computations.

Recommendation: All investigators and potential first responders should be familiar with standard mass balance computations, volume estimating methods, and standard volume-mass conversions.

Recommendation: When the volume spilled is unknown or uncertain, the response team should be sized based upon the potential, until more reliable information is available.

Delay consideration: Slow identification of oil leak and path.

While ACoE staff were able to identify the path for the oil found inside the power house and the gate slots within hours, they were unable to identify the path of oil into the river below the dam. The oil in the gate slots above the dam was being held in place and even concentrated by the movement of the river against the dam structure, and was clearly visible. The oil that was released into the river below the dam was flowing under the snow into the roof drains, which drained directly into the river in the tail bay near the effluent from turbine 5.[2] This oil, mixed by the turbulent water in the tail bay, was visible on the surface only in areas of relatively calm water like the area at the base of the dam. This visual disparity may have confused the focus of the initial ACoE team who were working to identify and control the source.

Lesson: On-scene responses to spills from dams, which are presently mandated by WDOE policy, should initially focus on the potential of any oil released downstream, since the dam structure itself will often contain and concentrate upstream spills.

Success: Mark Layman made downstream surveys a priority objective for the response in the first 24 hours and called in Ron Holcomb who focused the investigations on identifying the path of oil into the river downstream and on compiling a mass balance for the oil in the transformers.

Recommendation: Whenever any quantity of oil is reported as being released or observed downstream from a dam, an immediate priority should be given to a visual survey of the reach below the dam, the potential implementation of downstream GRP strategies and the identification and control of the source of the downstream pollution.

Delay consideration: Use of field reconnaissance, overflight, etc.

As previously mentioned, the dam structure itself will often contain and concentrate upstream spills when there is no water going over the spillways. However, the same river current that concentrates the oil spilled upstream will transport any oil spilled downstream at the speed of the surface water movement. It is the downstream oil that can pose the greatest environmental threat and the GRP strategies are generally developed to protect against this moving oil. The ACoE and its contractors are generally focused on addressing any oil in or on the dam since this is considered to be Federal property. The view seems to be that once the water leaves the dam it is State water until it hits the next dam. Thus WDOE is mandated to protect and clean State waters,

[2] See ACoE Assessment Paper 2/3/04, Page 2

while ACoE is focused on the dam but not the downstream water. In this spill WDOE staff observed and documented oil just below the dam and directed surveys downstream when they arrived two hours before sunset the first day. Based on input from ACoE and their contractors that they had not seen any oil downstream except at the face of the dam, the SOSC did not request a WDOE observation on the first day.

Lesson: It is contingent on WDOE to make provision for rapid assessment and response to downstream spills independent of the actions of ACoE or other potential spillers.

Lesson: Based on the time and location of the discovery of the oil in the dam, Ron Holcomb estimated that the bulk of the oil that went downstream via the roof drains was probably released during the pre-dawn hours of January 15th. If we randomly assume that the bulk of the oil spilled downstream was released over a short period of time around 0400 that morning, and if we assume a river surface velocity of 1.5 mph, then:

- By sunrise (around 0800) the oil would be about 6 miles downstream, well around the Dalles bend in the river, at approximately river mile 186, having already past the first 4 GRP sites. It would be moving between the ice sheets on either side of the river and sometimes sticking under the ice, as was later discovered at the two marinas.
- By 1500 when Mark and Will arrived on scene, the theoretical oil slick would be about 17 miles downstream, around river mile 175 having then past 11 GRP sites.
- By 1300 on the next day (Friday the 16th) when the helicopter overflight occurred, the leading edge of the theoretical oil slick would be where the actual oil was spotted, over 40 miles downstream from the Dalles Project having passed all 36 GRPs between it and Bonneville dam.

With this simplistic trajectory in mind, it is important to note that even if:

- the SOSC had called out observers and a contractor when he first learned that there was oil below the dam at around 1130, and
- there were response equipment caches in the river-reach below the dam, and
- the contractor had boats and people immediately available,

it would still have been a race against the river speed and daylight to get any GRP's in place the first day, even starting with sites 20 miles below the dam.

Lesson: In considering delays associated with this or any river spill response, it is the recognition of downstream threat and the deployment of observers and GRP strategies that appear to be the most crucial potential delays in terms of protecting State waters and shorelines.

Success: Mark Layman, immediately after arriving on scene, directed that downstream surveys be conducted as a priority objective for the response in the first 24 hours. Will Strand photographically documented the oil below the dam within minutes of arriving at the site, and Ron Holcomb focused the investigations on identifying the path of oil into the river downstream.

Success: Mark Layman was concerned about the negative reports of oil downstream that he was hearing from the ACoE contractor on Friday morning (see chronology) and worked with David Byers to get the helicopter overflight going, even though the reported volume was still less than 100 gallons.

Recommendation: If there is any oil reported below a dam, WDOE responders must work closely with the ACoE in assessing the amount of oil spilled and in controlling the source, while also immediately calling for independent visual surveys of the reach below the dam and immediately activating State contractors to begin preparations for deployment of GRP strategies below the dam.

Recommendation: All potential field observers and first responders should receive training in the identification, standard classification and volume estimation of floating oil. Whenever possible, responders should be sent out with experienced observers for training, calibration and/or confirmation.

Recommendation: Without a mass-balance confirmation, all estimates of spill volume based on observations of floating oil, even from trained observers, should be given as a range of volumes, often as being within an order of magnitude, thus more accurately portraying the inherent uncertainties.

Delay consideration: Established procedural triggers for Level 3 launch.

The question of a delay implies an expectation of a potential earlier launch of the Level 3 overhead team based on some triggering criteria. In trying to identify these triggers I was unable to elicit any specific criteria in the interviews and did not find any written criteria. In the SPPR interim response manual (dated 10/28/03), Section V-B, titled "Incident Classification & Ecology Response Criteria", the four classification levels are defined by the size and type of WDOE response in place, rather than by any defined criteria for shifting to a higher level. Likewise, this same section gives criteria for triggering the *initial* "Go/No-Go" decision but not for shifting between levels.

Lesson: It is presently unclear what constitutes a shift from a Level 2 to a Level 3 classification. When Ron Holcomb arrived on-scene Friday morning, did the response remain as Level 2? When Rebecca Post, Dave Mora, Andy Carlson and Jon Kuykendall arrived on Friday afternoon, was it then a Level 3 response? The question of delay in the launch of the Level 3 overhead team seems to be referring to timing of the responders who arrived Saturday morning.

Success: The SOSC and the HQ staff were able to bring Ron Holcomb on-scene, launch the helicopter overflight and have Vancouver field office staff conduct driving surveys of the reach below the dam, all within 24 hours of the initial spill notification.

Recommendation: If criteria are developed for changing response levels, they should include not only existing on-scene staffing, but also the ICS training of the on-scene staff and any potential efficiencies to be gained by relieving RP staff, thus allowing them to focus on critical operational responsibilities with which they may be more familiar.

Recommendation: Given that the WDOE Levels are not commonly understood and have no operational meaning outside of WDOE, it is recommended that they not be referenced in any external communications.

Recommendation: The term "Overhead Team" has specialized meaning within WDOE but can be confusing or misleading for other responders. "Overhead" is often viewed as a negative term referring to potentially extraneous staffing or costs, particularly in the response industry. It is

recommended that SPPR change the internal and external name for this team to something like Washington Incident Command Assistance Team (WICAT). This is similar to the Incident Management Assistance Team (IMAT) nomenclature used by the Coast Guard and industry, but provides a more unique Washington State identity. This may also help built an esprit-de-corps within the State team members.

Recommendation: The term "After-Hours Responders" also has specialized meaning within WDOE that is seemingly obvious to insiders, but may be counterintuitive to other responders, particularly because it can refer to people who have other known roles in a response. These responders are filling specific roles when they are on-call. It might be less confusing and generally better to just refer to them in terms of the position they are filling, either while on-call or in their normal response assignment.

Delay consideration: Instinct and Judgment

These are two qualities that can play a major role in crucial decisions, but they are also difficult to quantify and evaluate. Implied in decisions based on instinct and individual judgment is a level of trust both by the individual making the decision and their immediate supervisors. What we refer to as instinct or intuition is often a reflection of experience previously gained by the individual or learned from the experience of others.

To see how these qualities had impact in this incident, consider the following questions:

- Why deploy any WDOE resources for a 25 gallon spill?

- Why send out a helicopter overflight for a spill that is still reported as 75 gallons?

- Why send in an incident management team when the UC doesn't think it is needed?

- Why pursue a mass balance evaluation for a 25 gallon spill?

- Why worry about PCBs if EPA is unconcerned?

The answers to these questions all get back to responders or supervisors who made correct decisions based on "gut reactions", "feeling", or past experience.

Lesson: Allowing WDOE staff to make time critical decisions based on their instinct can be disconcerting but it can also be an opportunity to take advantage of experience to make the response more effective and build or establish trust.

Lesson: Decisions based on instinct, intuition or "gut reactions" often have maximum beneficial impact when implemented early in emergency response, but they can also be hard to defend if they prove wrong.

Success: In the case of the Dalles Project Spill the WDOE response benefited from the fact that each of the questions above can be answered with: "Instinct and individual judgment", along with the implied institutional and managerial trust.

Recommendation: Experienced WDOE personnel should be encouraged to voice their instinctual reactions and recommendations knowing that these will be received and considered in any associated decisions.

Recommendation: Because instinct and intuition are built on individual experience, it is recommended that WDOE develop a method of capturing individual experience so that it can become part of an organizational memory, which can then foster institutional instinctive response actions. To this end it is recommended that WDOE build a database of incident histories, which can be maintained and accessed within SPPR, to allow for the effective sharing of experience. (See Recommendations under In-House Information Flow in this review (pg 13) and attached samples from NOAA and Coast Guard spill histories databases.)

Delay consideration: Headquarters response support role

As mentioned in the WDOE DrillTrac training, the focus of an incident command structure should be on directing and supporting field operations. Some of the recommendations contained in this report reflect the application of this operations-centric support concept to the WDOE/SPPR issues raised during this response. Viewing regional responders as the operational arm of the SPPR, it becomes important for coworkers and management in the regional offices and at headquarters to provide clear communications channels and needed off-site support. Applying the ICS model to the overall Spills Program, the non-deployed regional and headquarters staff, functioning as the "Home Team", can remotely provide Planning, Logistics, Administrative, Liaison, Safety, Technical and Information services to the "Away Team" in lieu of responding on-scene, or until a field team is deployed. This need to provide "home team" support capabilities at headquarters is particularly important for the smaller Central and Eastern regional offices, where even mounting a Level 2 response may entail use of headquarters resources.

Lesson: A SPPR Response Support and Information Center (called RSIC here, but also known as War Room or Situation Room, or EOC, etc.), should be established in the Spills Program headquarters office. To facilitate the coordination and delivery of needed support, this space would require access to communications capabilities and serve as a posting location for maps, photographs and response documentation. This space would also function as a single location for headquarters staff to track the status of field responses, maintain contact with field teams, and receive a briefing prior to deployment.

Success: In the past, Steve Hunter recognized the need for this HQ support function and provided it, and even without formal input, David Byers also recognized this need and provided some needed basic support and liaison for the response.

Recommendation: A primary HQ Support Coordinator (referred to here as HSC) should be identified for each incident. This person should have sufficient authority to activate needed State resources and interact with other appropriate State and Federal agency managers. The HSC would be responsible for interacting with the on-scene responders (Away Team) and for providing/directing "home team" liaison, resource ordering and technical support services from headquarters for the team in the field. (This is apparently a function which Steve Hunter has provided in the past but for which there are no existing written descriptions, policies or procedures.)

Recommendation: It is recommended that Steve Hunter work in conjunction with the regional SOSCs and selected headquarters staff to develop and publish standard operating and staffing

procedures for a headquarters RSIC. These procedures should include a checklist for the HSC, focused on consistent, clear communications with field responders and SPPR headquarters support and management staff.

Recommendation: The SOSC and HSC should consider and discuss the activation of other contract cleanup resources needed to address oil in the river while ACoE resources and contractors are focused on the dam.

Delay consideration: Need to institute standard WDOE ICS procedures

Without clear up-to-date SOPs or an Ops Manual, it is difficult for responders to understand expectations and to function within desired limits.

Recommendation: All Washington State responders should receive DrillTrac training prior to deployment.

Recommendation: As soon as possible after a SOSC is on-scene at a response, an administrative support person should be dispatched to serve as UC recorder, command post coordinator and to assume other responsibilities as needed.

Recommendation: As soon as WDOE staff arrives at the command post, they should establish the use of the ICS-211 check-in forms if they are not already in use, and maintain this practice until all have completed Demob forms.

Recommendation: WDOE should identify caches of cleanup equipment maintained by various companies along the Columbia River, and establish contracts with these companies prior to any spill response. (See Roy Robertson's response resource information tracking database)

Issue 2: Unified Command

Did unity break down in the Unified Command? What options/power does SOSC have?

UC consideration: RP's team untrained, uncooperative, sovereign immunity

The following suggestions are specific to WDOE's interaction with the ACoE district and project staff and may be outside the intended purview of this report. It is also recognized that WDOE may not expect to be reimbursed for the recommended services, but these recommendations are provided without regard to potential funding constraints.

Lesson: The ACoE assessment report includes recommendations that ACoE:

- "Pre-stage boom at Bingen marina, Spring Creek Fish Hatchery and Dalles Boat Basin.
- Oil spill training of crews should include hands-on inland water oil spills training.

- Oil spill equipment should be staged and ready to be used.
- [Develop the] Ability to perform an oil spill inventory [i.e. mass balance] earlier than 6 days into the event.
- Pre-stage containment boom on open trailers and absorbents on closed trailers.
- Deploy containment boom up and down stream of units during annual or other oil spill risk maintenance.
- Should evaluate the command and control process, communications and interactions with external entities." [2]

Success: Mark Layman and other WDOE staff have forged relationships with key ACoE Project staff that can be drawn upon during responses and potentially during training.

Success: Dale Jensen has continued to interact with ACoE District management to encourage action on the recommendations contained in their assessment report, and is working with them to share WDOE ICS expertise with their staff.

Recommendation: Until a ACoE is capable of fielding an ICS trained regional or district incident management assistance team, WDOE should consider immediately deploying a full incident management team to maximize the potential for protecting State resources at risk whenever there is an incident at a ACoE facility.

Recommendation: If the responsible party is unfamiliar with the operation of the Unified Command and standard ICS processes, it is critical that trained WDOE staff work within the incident management structure while maintaining DrillTrac standards and procedures.

Recommendation: ACoE management should continue to be encouraged at the highest levels to purchase and warehouse response equipment at each of their dams and to ensure training for their on-site staff in the rapid and safe deployment of the cached response resources.

Recommendation: If possible, WDOE should provide or recommend DrillTrac training for ACoE personnel at regional training sites accessible to the staff from the dams.

Recommendation: ACoE management should be encouraged to reestablish the District Emergency Response Team (DERT) for rapid deployment of operational resources and mutual aid during incidents at ACoE dams. Additionally ACoE District staff should be encouraged to develop a district incident management assistance team to take over command post functions, freeing the facilities staff for operational assignments.

UC consideration: JIC controlled by RP, unilateral news releases

The JIC was not convened until two days after the spill, and during that time the ACoE PIO was acting independently and without approval from the entire UC.

Lesson: The WDOE PIO staff need to be contacted earlier and kept in the communications loop from the HQ office, with expectations clearly expressed.

Recommendation: JIC expectations and responsibilities should be clearly established and notification and deployment protocols should be developed and mutually approved.

Recommendation: JIC personnel should be encouraged to contact other potential JIC members and develop protocols for working in a "virtual JIC" via email or designated web pages.

Recommendation: WDOE PIO staff should be trained in ICS before any field deployment.

UC consideration: Liaison officer untrained, ineffective, no State safety staff familiar with State-specific safety commitments, no logistics section and no finance section

Lesson: Both the Safety Officer and Liaison Officer positions should be thought of in the context of a unified response as requiring agency-specific staffing similar to the JIC staffing under the Information Officer.

Lesson: Liaison with Washington State government agencies and officials should be handled within the WDOE/SPPR senior staff as the specific contact dictates.

Lesson: When responding with the ACoE or other non-plan-holders where reimbursable funding is doubtful or subject to later litigation, WDOE staff is responsible for providing its own Logistics and Finance support in order to fulfill its environmental protection and investigation mandates.

Success: Ultimately the needed Washington state liaison tasks were performed by WDOE headquarters staff.

Recommendation: Designated State of Washington personnel should be assigned to work within the unified command Liaison and Safety offices, similar to the way the JIC works. These positions would focus on issues, policies, mandates and communications specific to Washington.

Recommendation: A designated State of Washington Safety Officer should be assigned to each incident, functioning either on-scene or remotely in conjunction with on-scene safety personnel.

Recommendation: Safety of responders and the public should be the top priority and should be emphasized in any published policies or procedures and should frequently be revisited in communications with the deployed staff.

Recommendation: Policies concerning any approved participation of volunteers, NGO personnel, media representatives and other non-State personnel, or untrained State personnel, in field or command post operations, should be clearly addressed and published. These published policies and procedures should be focused on the **safety** of all participants.

Recommendation: Field personnel should be empowered to make whatever decisions are necessary in the field to protect the **safety** of responders and the public.

Recommendation: If it is not already required, it is recommended that all potential WDOE field observers be certified as having received training in fixed-wing, helicopter and boating **safety** before being allowed to embark on any State-owned or State-leased vessels or aircraft.

Recommendation: A designated State of Washington Liaison Officer should be assigned to each incident, functioning either on-scene or remotely in conjunction with the on-scene Liaison Officer and staff.

UC consideration: FOSC and Oregon SOSC resist early level 3

Lesson: Other responders, including Federal and other state agencies, cannot relieve WDOE of its mandate to protect state waters, but must be informed of the requirement and the intent to fulfill that requirement within the Unified Command structure.

Lesson: It is important that the SOSC and staff maintain a good working relationship with other members of the Unified Command and unified response.

Success: Mark Layman informed the UC of the need for additional staff to meet WDOE response standards and Mark and David Byers made the call to field a full team in the face of opposition from the RP, FOSC and OSOSC.

Success: Mark Layman recognized that the other members of the UC and their staffs would probably not move to another Incident Command Post (ICP), and worked with the WDOE responders and the Command Staff to maintain the ICP at a single location thus avoiding a potential physical separation in the incident management structure.

Recommendation: If budget and staffing allow, it would be best to respond early with a larger team to assist in initial setup and situation scoping. As soon as it becomes clear that any staff is not needed, they can be released. This overstaffing of the initial response can also be viewed as providing training opportunities for both new and experienced staff.

Recommendation: If section chief and unit leader positions are to be filled, deputies should be assigned as soon as feasible.

Recommendation: WDOE responders should be prepared to deal with less than ideal command post environments, which may include having to provide their own food, lodging and transportation.

Recommendation: Unless space constraints require a command post shift, it is best to avoid this disruption if at all possible.

UC consideration: Mixed advice regarding PCB risk and strategy

Lesson: Jon Neel's PCB research mentioned in his Lesson Learned Form contains crucial information concerning provisions in the Model Toxics Act requiring action on releases of oil with >1ppm of PCB. This type of information would have been important during the Dalles Project response and should be compiled and made available online for all WDOE responders.

Lesson: The concentration of specific (potentially toxic) components of released products may change with weathering, evaporation and natural dispersion/collection, and may differ dramatically from the information given on generic, or even specific, material safety data sheets (MSDS) or other analytical reports.

Success: Samples were taken from the oil in the secondary containment areas around the transformers and apparently from the oil found under the ice, but this was not confirmed, and any samples taken do not appear to have been analyzed.

Success: Jon Neel did the follow-up study on oil containing PCB, which will be useful for any similar incidents in the future.

Recommendation: Fact sheets concerning mandated action levels with appropriate State regulatory references should be compiled for selected toxic substances and hazardous materials, and should be made available in printed and online formats for State responders. This information would supplement available generic MSDS or hazardous chemical database reports and would focus on specific Washington State concerns and mandates.

Recommendation: If the spilled product is reported to contain any toxic substance, samples should be taken at the spill sites and if possible from the weathered product in the field. The samples should be transported for analysis at the earliest possible date to confirm the safety of responders and the public. This is recommended regardless of the presence or absence of any "fingerprinting" concerns.

Issue 3: In-House Information Flow

Was there adequate information flow from on-scene to WDOE management and stakeholders?

Info flow consideration: Channels used, frequency, accuracy

Lesson: Communications and computer equipment needed to send, receive and track critical response and status information was needed.

Lesson: An easy and widely available access to the internet is needed for use by all WDOE field responders regardless of the location.

Success: Will Strand had a digital camera which was used to document the situation at the dam.

Success: Dale Davis brought a computer with a needed mapping package and a color printer.

Recommendation: Needed communications and computer equipment should be procured and deployed for use by field responders. This equipment may include: laptop computers, combination printer-copier-scanner machines, data sticks, and appropriate mapping, photo handling and communications software.

Recommendation: WDOE/SPPR should establish an account with a common ISP allowing dial-up access to the internet from any phone in the state. Verizon-net, AT&T Worldnet, and AOL are examples of readily available dial-up ISPs presently used by other response groups.

Info flow consideration: Established policy and procedures on in-house situation reporting

Lesson: A standard needs to be established for a WDOE reporting format, frequency and media.

Lesson: Communications and reporting burdens on field responders should be minimized to allow them to focus on the response and to take advantage of available resources at headquarters.

Recommendation: Response notebooks (either WDOE issued or personal) should be used for as long as needed and can be used in lieu of an ICS 214a, provided that times and actions/

observations are consistently recorded, copies are given to the Documentation Unit and it is recognized that they become part of the public record.

Recommendation: A single email account be established for the HSC which will be used for all communications and reporting by the field responders and be accessed by whoever has the HSC watch at headquarters.

Recommendation: The establishment of a separate in-house web page for the use of WDOE SPPR staff is recommended. This could act as a remotely available situation status display for headquarters and other field offices and for personnel that may be called upon to relieve on-scene staff.

Recommendation: The HSC or assigned RSIC staff should interact with the Spills Program webmaster to ensure public and in-house web pages are correct and up-to-date.

Recommendation: A standard format for brief evening status reports should be developed (or use the ICS ExecSum report), and all responses should be required to submit this brief report at the end of each day. These brief evening reports will be invaluable in conveying status to headquarters and in producing after-action reports.

Recommendation: A standard format for after-action reports, including lessons learned and recommended actions, should be developed by SPPR staff. Once this format is developed, it is recommended that a searchable database of these reports be maintained online, with the ability to be interactively updated as actions are completed and further lessons surface. Sample records from the NOAA and Coast Guard spill histories databases are attached to this report, in .pdf format, for the Ashland Oil spill on the Ohio River and for some historic spills in Washington. In reviewing these samples note the underlying database record format implicit in the specific fields of information entered.

Recommendation: The HSC or assigned RSIC staff should interact with the Spills Program webmaster to ensure web pages are correct and up-to-date.

Caveats and concluding comments:

The recommendations and opinions expressed here are those of the reviewer and are based upon a limited understanding of WDOE standard policies, operating procedures and personnel interactions. The WDOE staff that were interviewed and contacted for this review were very pleasant, capable, and professional. The general impression is that they did an excellent job of responding to a challenging situation involving emerging hazards, foul weather, limited daylight, unknown spilled quantities and poorly trained partners, and they did this while functioning in the emotionally and politically charged response management environment. While this may be what is expected of WDOE/SPPR response staff, the abilities implied in meeting these expectations should neither be underestimated nor go unrecognized. It is frequently the case that the people who are best at a job are also the ones who are least noticed and receive the least recognition.

The observations, lessons learned, suggestions and recommendations given here are provided as input to the WDOE Spills Program improvement process. Additionally, it should be noted that for this reviewer, as mentioned in the WDOE DrillTrac training, the focus of an incident command structure should be on directing and supporting field Operations. Some of the recommendations contained in this report are applications of this Operations-centric support concept to the WDOE/SPPR issues raised during this response. If regional responders are viewed as the operational arm of the SPPR, it becomes important for coworkers and management in the regional offices and at headquarters to provide clear communications channels and needed off-site support.

Applying the ICS model to the overall Spills Program, the non-deployed regional and headquarters staff, functioning as the “home team”, can provide planning, logistics, administrative, liaison, safety, and information services to the “away team”. These services can be provided in lieu of responding on-scene, or until a field team is deployed. This need to provide “home team” support capabilities at headquarters is particularly important for the smaller Central and Eastern regional offices where even mounting a Level 2 response may entail use of headquarters resources.

Interviews conducted:

The following individuals were interviewed for this report:

State On-Scene Coordinator (Mark Layman)

Deputy State On Scene Coordinator (Will Strand)

Public Information Officer (Joye Redfield)

Planning Section Chief (John Butler)

Environmental Unit Leader (Rebecca Post)

Ecology Investigator (Ron Holcomb)

Program Manager for Ecology Spill Program (Dale Jensen)

Response Section Manager for Ecology Spill Program (David Byers)

Preparedness Section Manager for Ecology Spill Program (Linda Pilkey-Jarvis)

Dalles Project Spill Response - Abridged Chronology

Thursday, 15 January 2004:

0630 ACoE maintenance staff find oil leaking into power plant with approximately 60 gallons in a pool on the sixth level.

0700 Control room is notified.

Oil is found in the gate slots next to transformer 2B.

0754 Sunrise

0848 Oil was reported in the spillway tail water area.

1010 The National Response Center (NRC) is notified by Jim Dennis of ACoE, reporting a release of approximately 25 gallons of hydraulic fluid discovered at 0945 local time. An area of rainbow sheen approximately 8ft. by 50ft. is reported. NRC incident report # 710633

1027 NRC notified WDEM, ODEM, CG-PDX, EPA-10, ATSDR-WA, NIPC & FIMA.

1030 Mark Layman (ML) receives calls from Jim Dennis of ACoE reporting a 25 gallon spill of transformer oil into the gate slots.

1040 ML calls WDOE NRDA and leaves message.

1100 ML calls David Byers to relay report and inform that he will be deploying with Will Strand to go on-scene.

1115 ML receives call back from Dave Mora, NRDA.

1116 ML call into Jim Dennis at the dam.

1150 ML receives call back from Jim Dennis who reports that ACoE is seeing oil on the water at the base of the dam and has called contractors, Foss Env.

1155 ML called David Byers and informed him of oil sighting and asked him to notify NRDA (NRDA can make choice whether to conduct overflight.)

1200 ML and Will Strand leave WDOE-CRO in route to site.

1315 Jim Dennis called ML to confirm oil at the base of the dam “right around the corner”, also said that Foss was one hour out and that Jon Peterson would be the Foss OPS boss.

1440 ML requests that David Byers notify ODEQ and Yakima Nation.

1455 ML and Will Strand arrive at Dam.

1500 Will Strand taking photos of dam and oil.

-Photos show oil below dam and no boom in water.

1500 ML gets briefing from Jim Dennis.

- ML is informed that there are 8ppm PCB’s in spilled oil.

1530 ML setting up Command Post and working on ICS-201 form.

1530 ML called David Byers to notify him of PCB's.

1535 Call from Jon Peterson saying Foss will place 1,300' of boom at the base of the dam before dark.

1535 ML called John Butler to relay unknown quantity and PCB content.

1554 ML called David Byers to confirm Yakima Nation notification.

1600 ML completes first ICS-202 (Operational Period (OP) = 1330 1/15/04 to 0700 1/16/04)

OP Objectives include: 1) Safe operations, 2) Placing 1,300' of boom at face of dam to contain spill in raceway,. 3) Conduct downstream survey, 4) Place deflection boom @ boat ramp.

1615 ML completes 2nd ICS-202 (OP = 0700 to1900 1/16/04)

OP Objectives include: 1) Safe operations, 2) Continue clean-up at face of dam 3) Vac oil out of gate slots, 4) Evaluate other contaminated areas & clean transformer bays, 5) Continue downstream survey

1610 Dead fish noted in spill gate.

1620 ML called Dave Mora (DM) to request RAR and GRPs for area within 5 miles below dam.

1630 First ICS-201 completed and Unified Command in place with Jim Dennis as RPIC, Mark Layman as WSOSC (& PSC) and Mike Renz as OSOSC.

1645 ML called by David Byers to inform that Ron Holcomb will be investigator and will be arriving in morning.

1654 Sunset

Friday, 16 January 2004:

0630 ML and Will Strand check-in at command post.

0800 After a series of phone calls between the SOSC and headquarters staff, it was determined that an overflight of the Columbia river downstream from the Dalles dam should be conducted Friday afternoon.

0930 The observers on the overflight, David Mora and Rebecca Post from SPPR and Andy Carlson from WDF&W were notified of the overflight, leaving Olympia at 1130.

1000 ML is repeatedly assured by Foss representative that they are looking downstream and are not seeing any oil in the river below the dam.

1045 Ron Holcomb, arrives on-scene, providing immediate support in the command post and serving as the State investigator.

1130 Unified Command meeting, attended by Jim Dennis (ACoE-IC), Mike Renz (OSOSC), Dan Heister (FOSC from EPA) and Mark Layman (WSOSC). Mark recommended enhancing the spill management ICS capabilities by bringing in a "Level 3 Overhead Team" from WDOE. Mark based this recommendation on the presence of PCB's in the

oil, an unknown quantity of oil downstream, the fish kill, and the need for additional trained command post staff. This recommendation was rejected by the rest of the UC, with the FOSC downplaying the PCB issue, and the OSOSC minimizing the response management support needs and warning against "Chicken Little" reaction.

1230 Ron spends Friday afternoon and evening working with ACoE staff, trying to locate the source of the downstream oil spill.

1300 The ACoE press release upped the estimated quantity spilled into the river to 75 gallons.

1410 The SOSC received a call from the helicopter team informing him that they had landed in the vicinity of the city of Carson about 37 river-miles below the Dalles Dam and had seen oil sheens “bank to bank”.

1530 The helo team arrived at the CP as did Jon Kuykendall who conducted a visual survey of the river while driving from the WDOE office in Vancouver. All observers reported sighting oil sheens as far as 40 miles downstream from the Dalles Dam. Conversations that afternoon between on-scene WDOE staff and SPPR Headquarters led to the deployment of additional personnel constituting a “full Level 3 overhead team” who began arriving Saturday morning, January 17th.

Saturday, 17 January 2004:

The chronology given below is taken from the ICS-211p Check-in Lists at the Incident Command Post at the Dalles Project for the 17th:

0630 Mark Layman(SOSC), Will Strand(DSOSC), Ron Holcomb(Investigator), Rebecca Post(EUL) and Dale Davis (NRDA replacing Mora)

0720 Curt Piesch, from Vancouver;

0830 Nanette Brooks (Doc. Unit)

1000 Joye Redfield (PIO)

1055 Shellyne Grisham (Sit.), John Butler (PSC) & Andy Carlson (WDFW, EU) flew in by helo from Olympia, checked-in at CP

1630 Dan Doty and Eric Larson (WDFW, EU)

1750 Eric Heinitz (SOSC?) and Doug Stolz (Field Obs) checked-in at CP

NOTE: No Check-In Lists were available after the 17th. While work continued on the response and appropriate documentation and forms were generated, there are no additional chronology entries since the requested issues deal with the response before this time.